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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/659,443	09/10/2003	John Alexander MacMillan	YOUZ 2 00088	4869

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EXAMINER	
SINGH, PREM C	

ART UNIT	PAPER NUMBER
1764	

DATE MAILED: 03/30/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/659,443	MACMILLAN, JOHN ALEXANDER	
	Examiner	Art Unit	
	Prem C. Singh	1764	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *10 September 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-25* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-25* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Specification

The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

The following title is suggested:

"A Process for Corrosion Inhibiting Composition in Hydrocarbon Fuels"

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-25 are rejected under 35 U.S.C. 102(b) as being anticipated by Macmillan et al (WO 97/45507).

Macmillan invention discloses that compounds of formula (I) where R_1 is a C_{10}-C_{32} alkenyl group and R_2 and R_3 are $-(OCH_2CH_2-)_n OH$, $(-OCH_2CHCH_3-)_n OH$ or $-OCH_2CHOHCH_2OH$ in which n is an integer from 1 to 10, are lubricity and corrosion –

prevention additives for fuels (Abstract). Macmillan invention further discloses that the compound of formula (I) have also been found to possess surprisingly useful anti-corrosion properties. Thus in certain oil refinery and pipeline cargo applications a corrosion inhibitor is required which will be resistant to base neutralization. The base, typically sodium hydroxide, can be present in fuels which have undergone a refinery sweetening treatment. The consequence of base neutralization is deactivation of added corrosion inhibitors and consequent levels of rust which are typical of a fuel without added corrosion inhibitors (Page 4, paragraph 4). The compounds of formula (I), however, have been found to provide effective corrosion inhibition which is resistant to base deactivation. Thus a further aspect of the invention provides a method of inhibiting corrosion on a metal surface exposed to a liquid hydrocarbon fuel, comprising the addition to said fuel of a compound of formula (I) as defined above. The metal surface, typically a pipe line or other metal vessel as use din the fuel transport and/or in known refinery processes, will generally be of iron or steel (Page 5, paragraph 1). Compounds of formula (I) may be added in amounts between 5 and 500 ppm, preferably between 10 and 500 ppm, and most preferably between 30 and 300 ppm, to achieve the desired corrosion inhibition in the fuel (Page 5, paragraph 2). (The applicant uses 1-20 ptb, which is pounds per thousand barrel, and 1 ptb = 4 ppm assuming a specific gravity for oil equal to 0.9). The compounds of formula (I) may for example be prepared by reacting an anhydride of formula as given with an alcohol of formula R_2OH and/or R_3OH where R_2 and R_3 are as defined above. The anhydride is conveniently prepared by addition of the olefin or polyolefin across the double bond of maleic anhydride by

processes known per se (Page 5, paragraph 4). 358 g of polyisobutenylsuccinic anhydride, prepared from maleic anhydride and NAPVIS X10 (available from BP) in the same manner as (B) above, was mixed with 372 g of ethylene glycol and the mixture was heated at 170-190°C for 12 hours with continuous removal of by-product water. After this period the reaction mixture was vacuum distilled for 2 hours then cooled to room temperature. The viscous liquid can be used directly as a fuel additive or can be diluted with SHELLSOL AB (available from Shell) (Page 7, paragraph 2).

Macmillan invention further discloses that a standardized corrosion test, such as the National Association of Corrosion Engineers (NACE) standard test TM-01-72, can measure the effectiveness of corrosion inhibitors (Page 10, paragraph 1). The test results using compound B show that on adding 5.7 mg/l of the additive in iso-octane, a rating of less than 0.5% is obtained on the NACE scale, and addition of 11.4 and 22.8 mg/l of additive show a rating of 0% (Page 10, Table). The reduction in corrosion inhibitor effectiveness in fuels containing alkali is demonstrated by the inhibitor's resistance to caustic extraction. One such caustic extraction screening test involves dosing fuels with 5% v/v of 8% w/w NaOH (aq) and then 5% v/v H_2O before corrosion testing via the NACE protocol (Page 11, paragraph 1). The test results show that the addition of 4.3 mg/l and 8.6 mg/l of compound B in iso-octane gives a NACE rating of 2% (Page 11, Table).

Macmillan invention discloses that R_1 is a C_{10}-C_{32} alkenyl group, but does not specifically mention that it has a molecular weight of from 250 to 400. It is inherently

known that any C_{10}-C_{32} alkenyl (olefin or polyolefin) will have molecular weight of from 250 to 400.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Macmillan et al, US Patent 6,156.082.

Howard, US Patent 3,531,414.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Prem C. Singh whose telephone number is 571-272-6381. The examiner can normally be reached on MF 6:30 AM-3:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Caldarola can be reached on 571-272-1444. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

ps/031706

Walter D. Griffin
Primary Examiner